



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/735,989	12/15/2003	Somenath Mitra	436/12	4147
27538	7590	03/28/2005	EXAMINER	
KAPLAN & GILMAN, L.L.P. 900 ROUTE 9 NORTH WOODBIDGE, NJ 07095			FASTOVSKY, LEONID M	
			ART UNIT	PAPER NUMBER
			3742	

DATE MAILED: 03/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/735,989	MITRA ET AL.	
	Examiner	Art Unit	
	Leonid M Fastovsky	3742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The abstract of the disclosure is objected to because it contains an extraneous word "comprising" (line 2). Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-2, 5, 10-11, 14-15 and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Jun et al (6,582,987).

Jun teaches a microheater and method of fabricating the microheater for microfluidic devices comprising a microchannel 202 formed on a silicon substrate 201 and a conductor- microheater 214 formed in the microchannel 202 and comprising a metal layer 215 (col. 7, lines 10-17).

As for claim 15, Jun teaches etching of the substrate 201 (col. 6, lines 60-65).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 3 and 6-7 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jun in view of Ferguson (2003/0209534).

Jun discloses substantially the claimed invention, but does not disclose quartz and borosilicate glass. Ferguson discloses resistive heating systems with a substrate 202 comprising quartz and borosilicate glass (page 10, [0068]). It would have been obvious to one having ordinary skill in the art to modify Jun's invention to include the substrate comprising quartz and borosilicate glass as taught by Ferguson in order to provide a more rigid structure for the microheater.

As to claim 3 and the limitation of the conductor comprising an aluminum alloy with 99% aluminum and silicon and copper, it is deemed that the material used for conductor would be chosen by user having a desired result in mind. Therefore it would have been obvious to have made the conductor made out of 99% aluminum and silicon and copper as to obtain the result wanted by the user.

6. Claims 4 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jun in view of Yamazaki (6,165,876) and further in view of Ueno et al (2002/00224662). Jun discloses substantially the claimed invention, but does not disclose a substrate comprising a polished silicon wafer, and a conductor-heater comprising boron ions.

Art Unit: 3742

Yamazaki discloses a method of doping a silicon film 203 with boron ion (col. 15, lines 1-18). Ueno discloses a microfluidic device having a heater 3 with a mirror- polished substrate (page 5, [0094]). It would have been obvious to one having ordinary skill in the art to modify Jun's invention to include a boron doped substrate as taught by Yamazaki and a polished substrate as taught by Ueno and a conductor comprising boron ions as taught by Yamazaki in order to assure better heating conditions for the microheater.

7. Claims 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jun in view of Yamazaki. Jun in view of Yamazaki discloses substantially the claimed invention , but does not teach boron ion implantation. Yamazaki teaches a method of implanting boron (col. 15, lines 1-10). It would have been obvious to one having ordinary skill in the art to modify the invention of Jun and Yamazaki to provide a method for fabricating a microheater because prior art references do teach performing a process and also structure limitations of the invention.

8. Claims 9, 13 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jun in view of Gaitan et al (5,464,966).

Jun discloses substantially the claimed invention, but does not disclose a glass layer disposed on the conductor-heater. Gaitan discloses a micro-hotplate device having a conductor heater 5 comprising a glass-silicone layer 13 (Fig. 5). It would have been obvious to one having ordinary skill in the art to modify Jun's invention to include a glass-silicone oxide layer as taught by Gaitan in order to provide protective insulation.

9. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jun.

Art Unit: 3742

Jun discloses substantially the claimed invention including a conductor-heater 214 comprising a metal layer 215, but does not specify the metal material. It would have been obvious to one having ordinary skill in the art to modify Jun's invention to include the conductor comprising aluminum as an obvious functional equivalent.

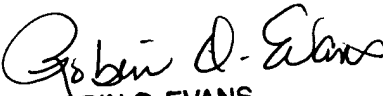
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonid M Fastovsky whose telephone number is 571-272-4778. The examiner can normally be reached on M-Th. 8.00 am -6.00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robin Evans can be reached on 571-272-4777. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

lmf


Leonid M Fastovsky
Examiner
Art Unit 3742

3/17/05

ROBIN O. EVANS
PRIMARY EXAMINER
3/18/05